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National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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Seattle, WA 98115-0070

Refer to:
OHB2002-0048-FEC

May 23, 2002

Mr. Fred P. Patron
Senior Transportation Planning Engineer
Federal Highway Administration, Oregon Division
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation for the Vets Bridge to Myrtle Creek Project, Douglas
County, Oregon

Dear Mr. Patron:

Enclosed is the biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of funding the proposed Vets Bridge to Myrtle Creek Project in Douglas County, Oregon. In this Opinion, NMFS concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Oregon Coast coho salmon, or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NMFS has included reasonable and prudent measures with nondiscretionary terms and conditions that NMFS believes are necessary to minimize the potential for incidental take associated with this action.

The attached biological opinion contains an analysis of the effects of the proposed action on designated critical habitat. Shortly before the issuance of this opinion, however, a Federal court vacated the rule designating critical habitat for the Evolutionarily Significant Units (ESUs) considered in this Opinion. The analysis and conclusions regarding critical habitat remain informative for our application of the jeopardy standard even though they no longer have independent legal significance. Also, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need to timely issue this Opinion, our critical habitat analysis has not been removed from this Opinion.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations (50 CFR part 600).



If you have any questions regarding this consultation, please contact Jim Collins of my staff in the Oregon Habitat Branch at 541.957.3389.

Sincerely,

for Michael R. Crouse

D. Robert Lohn
Regional Administrator

cc: Rose Owens - ODOT
John Raasch - ODOT
Ken Franklin - ODOT

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Vets Bridge to Myrtle Creek Project
Douglas County, Oregon

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: May 23, 2002

Issued by: *Michael R. Crouse*
D. Robert Lohn
Regional Administrator

Refer to: OHB2002-0048-FEC

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1. ENDANGERED SPECIES ACT

1.1 Background

On February 20, 2002, the National Marine Fisheries Service (NMFS) received a biological assessment (BA) and a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) Section 7 formal consultation for the Vets Bridge to Myrtle Creek Project. The project includes: Construction of a rockfall containment structure and repair of a failing embankment; interstate maintenance paving and applicable safety improvements; replacement of the Booth Ranch Bridge (northbound); and seismic retrofit of the southbound Booth Ranch Bridge. The project area starts near Roseburg, Oregon, and runs south along Interstate 5 (I-5) to the town of Myrtle Creek. The project applicant is the Oregon Department of Transportation (ODOT). This biological opinion (Opinion) is based on the information presented in the BA and discussions with the applicant.

The FHWA has determined that Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) may occur within the project area. The OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587), critical habitat was designated on February 16, 2000 (65 FR 7764), and interim protective regulations were issued under section 4(d) of the Endangered Species Act (ESA) on July 10, 2000 (65 FR 42422). Critical habitat is designated to include all river reaches accessible to listed coho salmon in Oregon coastal rivers between the Columbia River and Cape Blanco, Oregon. Excluded are areas above specific dams or above longstanding, naturally impassable barriers (i.e., natural waterfalls in existence for at least several hundred years). The FHWA, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect OC coho salmon.

This Opinion is based on the information presented in the BA and developed through correspondence to obtain additional information and clarity. The objective of this Opinion is to determine whether the proposed actions to remove the existing structure and construct a new structure are likely to jeopardize the continued existence of the OC coho salmon, or destroy or adversely modify critical habitat. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Action

1.2.1 Project Purpose

This project is designed to provide safety improvements along I-5 between milepost (MP) 101.5 and MP 124.5 as well as replace the Northbound Booth Ranch Bridge over the South Umpqua River. I-5 provides vehicular and commercial access between the major cities of Portland, Salem, and Eugene through the Willamette Valley of Western Oregon to Southern Oregon and California.

The existing northbound Booth Ranch Bridge has seven bents, three of which lie below the ordinary high water (OHW). Inspections of the bridge revealed that the concrete is deteriorated and cracked throughout. The poor condition of the bridge has caused it to be load restricted.

1.2.2 Northbound Booth Ranch Bridge Demolition

The existing bridge will be removed by cutting sections of the bridge and lifting them out with a crane. The contractor may need to install temporary supports and cross caps (approximately 7.0 meters apart) to remove the truss section. At least one pier is located within the OHW and will be sealed off with a cofferdam during the in-water work period to allow removal to commence within the dry. Temporary work platforms will be required within the OHW during bridge removal. Containment measures would be in place to ensure that no debris would enter the OHW. It will take at least two construction seasons to complete the project. Removal of the bridge will occur in 2002, during the first of two construction seasons. All demolition material would be disposed of outside of designated critical habitat, at an approved location. All depressions left in the channel from removal of piling and piers will be filled with clean, river-run cobbles sized to match the existing substrate.

1.2.3 New Northbound Booth Ranch Bridge

A temporary work bridge would be required to remove the existing bridge and to build the center span on the new bridge. It is estimated that four temporary work bridge bents will be installed within the OHW to build the new bridge. The work bridge would be composed of two driven piles per bent. The deck of the work bridge would be sealed to prevent pollutants from entering the waterway. The false work, that is required to pour the concrete for the new bridge, would be approximately five piles per bent, for a total of 28 temporary piles below the OHW. All temporary piles would be untreated timber or steel. Since the substrate of the South Umpqua River within the area of the northbound Booth Ranch Bridge is primarily bedrock, the footings for the temporary piles would likely have pre-cast concrete footings attached with rock anchors. If the temporary piles are driven they will be removed either by vibrating them out or cutting them off 0.3 meters below the stream bed.

The new bridge would be built on the existing alignment. The new bridge would be a post-tensioned box beam with four bents, two end-bents located at the ends of the bridge and two interior bents that would lie at the edges of the OHW. The two interior bents are estimated to be 14 meters long and 8 meters wide. The three spans would be 76, 91, and 70 meters long. The total length of the bridge would be approximately 248.3 meters and 15.82 meters wide. The new bridge is approximately 8.6 meters longer and 5.22 meters wider than the existing structure. The increased length will allow the bents to be set back from the channel, the extra width will allow for Federal safety compliance relating to minimum roadway widths.

Runoff from the new bridge and roadway would be piped to biofiltration ditches for treatment and discharged into existing ditches before entering the South Umpqua River. Currently there are seven scuppers which drain directly into the South Umpqua without any treatment.

Access on both the north and south ends of the bridge would be via existing access roads, requiring approximately 400 square meters of vegetation to be temporarily cleared and replanted. Approximately 12 deciduous trees ranging in size from two to twelve centimeters diameter breast height would possibly be removed. Vehicle and material staging would either occur at a rest area to the south or a field to the north. Both potential staging areas are outside of designated critical habitat.

All activities below the OHW elevation will be isolated using temporary cofferdams and would occur during the Oregon Department of Fish and Wildlife (ODFW) negotiated in-water work time (July 1 to September 15). Any exceptions to this timing would be granted only with the approval of a NMFS biologist. Any fish trapped in the isolation area would be removed by an approved biologist before dewatering.

1.2.4 Rockfall / Slide Repair

Construction of a rockfall containment structure and repair of a failing embankment would occur at approximately MP 109. The rockfall containment structure would be built on the opposite side of I-5 from the South Umpqua River and would have no impacts to the OHW or critical habitat. Excavation would occur adjacent to I-5 between the existing bank and the roadway.

The failed embankment lies between I-5 and the South Umpqua River at MP 109. Construction activities associated with the repair of the slide would require a retaining wall. Work on repairing the slide and construction of the retaining wall would occur outside of the OHW. In order to repair the slide, two trees would have to be removed: A western red cedar (*Thuja plicata*), and a Douglas fir (*Pseudotsuga menziesii*). Neither tree is within the OHW but both are approximately 30 centimeters in diameter and would either be left whole and on-site for wildlife habitat and as a source of organic litter, or used as large woody debris (LWD) at another mitigation site. Mitigation for both trees will be accomplished by replanting at a 1.5 to 1 ratio.

1.2.5 Interstate 5 Inlay / Overlay

The proposed maintenance paving, deck repair, and rail retrofit would occur on the existing road prism and no work will be done over a waterway. No trees would be cut and no wetlands would be impacted during this phase of the project. Staging areas are present on existing paved and graveled pullout areas adjacent to the highway. Construction would not occur within designated critical habitat or within the OHW.

1.2.6 Seismic Retrofittings

The proposed project includes seismic retrofitting of the southbound Booth Ranch Bridge, South Bound Shady Bridge, and the Vets Bridge. The rocker bearings supporting the trusses of these bridges are prone to toppling during an earthquake. Movement of the truss parallel to traffic would be limited with shock transmission units (STUs). The STUs would be attached to the pier with a steel plate, fastened with high strength through bolts, to the pier cap. The truss would be connected to the bearing gusset plate.

Shear lugs would be installed to prevent movement of the truss perpendicular to traffic. Concrete blocks, connected to the pier cap with resin-bonded dowels, would be cast on the inside and outside of each bearing. Steel cross-bracing would be installed at each transition pier, and steel cables would be installed to restrict movement of the unrestrained concrete beams.

Access to all three bridges would not require any trees to be cut. Temporary scaffolding, with proper containment, would be used in areas outside of the active channel. Upland access to install the scaffolding would require minor vegetation removal outside the OHW, primarily consisting of Himalayan blackberry (*Rubus discolor*), outside the OHW. Hanging platforms would be used to access bents and piers that do not have direct ground access, thereby keeping all work outside of the active channel.

The two footings for the new bridge that lie on the margins of the OHW would result in approximately 224 square meters of lost instream habitat. Due to the nature of the project site there is no feasible instream mitigation within the project area. ODOT would partner with ODFW and the Bureau of Land Management (BLM) to replace a culvert within the South Umpqua basin. The existing corrugated metal culvert lies approximately 300 meters upstream of the mouth of Woodford Creek, a secondary tributary to the South Umpqua River, and is approximately 1.5 meters in diameter and 20 meters long. Currently the culvert is a barrier to juvenile salmonids and a partial barrier to adults. Replacing the existing culvert would open approximately 4 kilometers of coho habitat. The BLM is the landowner and has granted ODOT permission to replace the culvert. ODFW would supervise the replacement of the culvert and monitor the culvert to assure fish passage.

1.2.7 Culvert Replacement

To compensate for the long-term impacts to salmonid habitat associated with the replacement of the northbound Booth Ranch Bridge, ODOT would replace a culvert on Woodford Creek, a secondary tributary to the South Umpqua River. Woodford Creek historically has provided both spawning and rearing habitat for OC coho salmon. The culvert lies approximately 300 meters upstream of the mouth of Woodford Creek. Currently the culvert is a barrier to juvenile salmonids and a partial barrier to adults. The existing 1.5 meter diameter culvert would be replaced, according to ODFW fish passage guidelines, with a “squashed” corrugated metal pipe. The proposed pipe would be 2.8 meters tall and 4.66 meters wide and 21.3 meters long. The culvert would be embedded 20% to simulate the one percent stream gradient of Woodford Creek.

This culvert width is slightly wider than the active channel width and would have a natural substrate bottom. The inlet and outlet would have a combined total of 70 cubic yards of class 150 riprap. Willows would be incorporated into the riprap at the inlet and outlet to provide bank complexity, shade and organic matter.

1.3 Biological Information and Critical Habitat

Within the South Umpqua watershed, the NMFS listed the OC coho salmon as threatened under the ESA on August 10, 1998 (63 FR 42587), critical habitat was designated on February 16, 2000 (65 FR 7764), and interim protective regulations were issued under section 4(d) of the Endangered Species Act (ESA) on July 10, 2000 (65 FR 42422). Critical habitat is designated to include all river reaches accessible to listed coho salmon in Oregon coastal rivers between the Columbia River and Cape Blanco, Oregon. Excluded are areas above specific dams or above longstanding, naturally impassable barriers (i.e., natural waterfalls in existence for at least several hundred years). The adjacent riparian zone is defined based on key riparian functions. These functions are shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

Coho salmon are known to spawn and rear in the South Umpqua watershed. Adult coho salmon enter the South Umpqua River in late September and spawn from October through January, with the majority of spawning activity occurring in smaller, low-gradient tributaries. Coho primarily use the South Umpqua River within the project area as a migration corridor. The migration of coho salmon smolts downstream typically occurs from early February through May, but may extend into June. Due to warm summer water temperatures, coho are not expected to occur in the project area during the ODFW in-water work period July 1 to September 15.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the: (1) Definition of the biological requirements and current status of the listed species, and (2) evaluation of the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration, and juvenile rearing of OC coho salmon.

1.4.1 Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed coho is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution, and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new available data that is relevant to the determination.

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration and holding in the action area. The current status of the OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed. The South Umpqua watershed serves as freshwater riverine spawning habitat and year-round juvenile rearing habitat. However, high sand and silt content in the substrate makes the action area an unlikely spawning habitat. Lack of complex cover, deep pools, and undercut banks combined with high summer water temperatures make juvenile salmonid rearing very unlikely in the action area.

1.4.2 Environmental Baseline

The current range-wide status of the identified ESU may be found in Nickelson et al. (1992) and Weitkamp et. al (1995). The identified action will occur within the range of OC coho salmon. The action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activity includes the immediate watershed where the bridge replacement and safety improvements will occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is the area adjacent to and over the South Umpqua River from approximately river kilometer 16 to 80. Temporary indirect impacts (temperature modification, disruption of primary productivity and food resources) and potential direct affects (sediment, pollutant discharge and hydraulics) to the South Umpqua River could be caused by the in-water work and general riparian and bank disturbance within the project area.

The dominant land use in the South Umpqua watershed is residential, private agriculture, forestry, and recreation. The South Umpqua River is water-deficient, primarily due to the seasonal pattern of rainfall and the demand for water for residential and irrigation use. The Oregon Department of Environmental Quality (ODEQ) has listed the South Umpqua River on their 303(d) List of Water Quality Limited Water Bodies (303(d) list). The ODEQ-listed water quality problems identified within the project area include biological criteria, dissolved oxygen (May to October), periphyton (summer), pH (summer), temperature (summer), and fecal coliform (ODEQ 1999).

Based on the best available information regarding the current status of OC coho salmon range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area, NMFS concludes that the biological requirements of OC coho salmon are not currently being met. Many aquatic habitat indicators are not properly functioning within the South Umpqua River, due to degradation caused by agricultural practices, forestry practices, road building and residential development. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of OC coho salmon.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The proposed actions have the potential to cause the following impacts to OC coho salmon:

Construction Equipment. As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of the back-hoes, excavators, and other equipment requires the use of fuel, lubricants, etc., which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, target and non-target riparian vegetation (Spence *et al.* 1996). To minimize the potential of pollutants entering the waterway construction equipment, materials and refueling would be staged at least 45 meters from the OHW.

Hardened embankments. Impacts to waterways from installation of hardened embankments include simplification of stream channels, alteration of hydraulic processes, and prevention of natural channel adjustments (Spence *et al.* 1996). Moreover, embankment hardening may shift the erosion point either upstream or downstream of the project site and contribute to stream velocity acceleration. As amplified erosive forces attack different locations and landowners respond with more bank hardening, the river eventually attains a continuous fixed alignment lacking habitat complexity (USACE 1977).

Fish habitats are enhanced by the diversity of habitats at the land-water interface and adjacent bank (USACE 1977). Stream-side vegetation provides the shade that reduces water temperature. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed upon by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flow events, a way to retain bed load materials, and reduction of flow velocity.

The most desirable method of bank protection is revegetation. However, revegetation alone can seldom stabilize banks steeper than 3:1 (horizontal : vertical) or areas of high velocity (USACE 1977). Although they are biologically less desirable, fixed structures provide the most reliable means of bank stability. The use of structural measures should be a last resort. Combining structural measures such as sloped riprap, vegetation, and large woody debris (LWD) is preferable to a structural solution without vegetation (USACE 1977). Where riprap is necessary it would be buried under native streambank material to facilitate stream continuity and the growth of woody vegetation.

Sedimentation. Potential sedimentation impacts to listed salmonids from the proposed actions include both direct and indirect effects. Potential direct effects include mortality from exposure to suspended sediments (turbidity) and contaminants resulting from construction. Potential indirect effects include behavioral changes resulting from elevated turbidity level (Sigler *et al.* 1984, Berg and Whitman *et al.* 1982, Gregory 1988), during river bank habitat alterations.

Suspended sediment and turbidity influences on fish range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (Sigler *et al.* 1984, Lloyd 1987, Scannell 1988). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a potentially positive reported effect is providing refuge and cover from predation (Gregory and Levings 1998).

Fish that remain in turbid, or elevated TSS, waters experience a reduction in predation from piscivorous fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade off (e.g., enhanced survival) to the cost of potential physical effects (e.g., reduced growth). Turbidity levels of about 23 Nephelometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjorn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjorn and Reiser 1991). Other behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjorn and Reiser

1991). Because the potential for turbidity should be localized and brief, the probability of direct mortality is negligible.

Construction related effects necessary to complete the proposed action will be minimized by implementation of effective erosion and pollution control measures and completing all work within the OHW during the ODFW recommended in-water work period. In addition, all work will be isolated from the wetted channel. No construction or construction equipment will enter the wetted channel, except for installation of coffer dams, as a result of the proposed action. All work outside of the OHW will be treated with sediment fence and other appropriate sediment and erosion control measures to avoid impacting the waterway.

Water Quality/Stormwater Effects. Due to an increase of new impervious surface associated with the bridge replacement, the potential exists for an increase in runoff from the proposed new impervious surface at the proposed project site. However, the proposed stormwater runoff treatment criteria will more than offset any potential adverse effects to water quality as a result of the proposed action. The proposed stormwater treatment criteria would require all stormwater to be routed to the end of the bridges where it would be treated in a manner that would not result in a change in the hydraulic conditions or an increase of pollutants to the South Umpqua River.

Stream Hydraulics. The placement of fill material below the OHW would typically result in simplification of habitat and increased stream velocities under the structure. However, based on new design technologies allowing greater span lengths in bridges, the new bridge would have fewer bents. Bridge approach fill within the 100 year floodplain can result in a restriction of the floodway causing increased stream velocities during high flows. The increased velocities can facilitate stream degradation downstream to unknown distances. The degradation process begins with increased channel down-cutting and bank erosion. This can result in an increase of fine sediments within the channel substrate as well as a decrease in width to depth ratios. Instream habitat can be simplified due to fewer pools and complex cover (Rosgen 1996). There is no new approach-fill proposed within the 100-year floodplain, so no changes in hydrology are expected.

Riparian Vegetation. The removal of some, mostly non-native invasive species of riparian vegetation such as Himalayan blackberry would result in the short-term potential for exposed soils and increased sediment transport to the South Umpqua River. There is no tree removal anticipated at the Booth Ranch Bridge site. All exposed soil surfaces, including construction access roads and associated staging areas, would be stabilized with mulch and native herbaceous seeding.

Work Area Isolation and Fish Removal. Bridge bent construction and removal may require work area isolation from the flowing water. Fish removal activities would be in accordance with NMFS fish handling guidelines. Any listed fish removed from the isolated work area would experience high stress with the possibility of up to a 5% delayed mortality rate depending on rescue method. Work area isolation can result in a loss of aquatic invertebrates due to dewatering areas within the wetted channel. In addition, sediment-laden water created within

isolated work areas could escape resulting in impacts to the aquatic environment downstream of the project site.

The adverse effects of these activities on OC coho salmon and riparian and aquatic habitats would be avoided or minimized by carrying out construction methods and approaches described in the BA.

1.5.2 Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for OC coho salmon consists of all waterways below naturally-impassable barriers including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter.

The proposed actions will affect critical habitat. Riparian function will be affected by the proposed action, with a short-term increase of sediments and turbidity, as well as disturbance of instream habitat. This will affect riparian function as described in Section 1.5.1 of this Opinion. Other habitat features that will likely be negatively affected by the proposed action include: Water quality (including temperature), water quantity, and riparian vegetation. Implementation of project conservation measures as described above in Section 1.2 (Proposed Action) would avoid or minimize the risk of adverse effects.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area has been defined as the area adjacent to and over the South Umpqua River from approximately river-kilometer 16 to 80. Many actions occur within the South Umpqua watershed, within which the action area is found.

Non-federal activities within the action area are expected to increase with a projected 34% increase in human population over the next 25 years in Oregon (Oregon Department of Administrative Services 1999). Thus, NMFS assumes that future private and State actions will continue within the action area, but at increasingly higher levels as population density increases. NMFS assumes that future FHWA transportation projects in the South Umpqua watershed will be reviewed through separate section 7 consultation processes and are not therefore considered cumulative effects.

1.6 Conclusion

NMFS has determined that, when the effects of the FHWA's proposed action are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of OC coho salmon, or cause adverse modification or destruction of designated critical habitat. These conclusions were based on the following considerations: (1) All in-water work and other construction activities within the OWH elevation will take place according to Oregon guidelines for timing of in-water work to protect fish and wildlife resources, (2) work area isolation (including use of NMFS' guidelines for proper fish handling) and other conservation measures will be in place to avoid or minimize adverse affects to water quality, (3) potential flow and water quality effects of increased impervious area will be avoided or minimized by water quality treatment and detention in biofiltration ditches before being released into the South Umpqua River, and (4) streambanks and riparian areas disturbed by new construction and in the area uncovered by removal of the old bridge will be planted with native woody vegetation. Therefore, the proposed action is not expected to prevent or delay the achievement of properly functioning habitat conditions in the action area.

1.7 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law, and if: (1) The amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion, or 4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease; pending reinitiation of consultation.

2. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm in the definition of "take" in the Act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount and Extent of the Take

The NMFS anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of OC coho salmon because of detrimental effects from sediment pulses, and the slight possibility of juvenile presence in the vicinity of the project site during in-water work. NMFS expects the possibility exists for incidental take of up to 20 juvenile coho salmon during work area isolation and handling of fish. Take resulting from the effects of other project actions covered by this Opinion is largely unquantifiable in the short term and not expected to be measurable in the long term. The extent of take is limited to the action area.

2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The FHWA has the continuing duty to regulate the activities covered in this incidental take statement. If the FHWA fails to require ODOT to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

The Vets Bridge to Myrtle Creek Project includes a set of “conservation measures” designed to minimize take of listed species. These are described on pages 30 to 35 of the BA, dated February 20, 2002. Specific measures for in-water and bank work, clearing and grubbing, bridge removal, erosion control, hazardous materials, and site-specific conservation and habitat remediation measures are included.

The NMFS believes that the following reasonable and prudent measures along with conservation measures described in the BA are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of this Opinion. These reasonable and prudent measures would also minimize adverse effects to designated critical habitat.

The FHWA shall:

1. Minimize the likelihood of incidental take by timing the completion of all in-water work as necessary to avoid harming vulnerable salmon life stages, including migration and rearing.
2. Minimize the likelihood of incidental take from in-water work by ensuring that the in-water work areas are isolated from flowing water.

3. Minimize the likelihood of incidental take through measures to avoid or minimize disturbance to riparian and aquatic systems, or where impacts are unavoidable, to replace lost riparian and instream functions.
4. Carry out a comprehensive monitoring and reporting program to ensure conservation measures are effective in minimizing take from permitted activities.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (in-water timing), the FHWA shall ensure that:
 - a. All work within the active channel that could potentially contribute sediment or toxicants to downstream fish-bearing systems will be completed within the ODFW negotiated in-water work period (July 1 to September 15).
 - b. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark, must be approved by biologists from NMFS.
2. To implement Reasonable and Prudent Measure #2 (isolation of in-water work area) the FHWA shall ensure that:
 - a. During pier removal and construction the work area is well isolated from the active flowing stream within a coffer dam (made out of sandbags, sheet pilings, inflatable bags, etc.), or similar structure, to minimize the potential for sediment entrainment.
 - b. During the culvert replacement the work area is isolated from the active flowing stream to minimize the potential for sediment entrainment.
3. To implement Reasonable and Prudent Measure #3 (proper fish handling methods), the FHWA shall ensure that fish capture using electrofishing or seining shall comply with the following methods:
 - a. Work area shall be well isolated from the active flowing stream within a coffer dam (made out of sandbags, sheet pilings, inflatable bags, etc.) or similar structure, to minimize the potential for sediment entrainment.
 - b. Before and intermittently during pumping, attempts will be made to seine and release fish from the work isolation area as is prudent to minimize risk of injury.
 - i. Seining will be conducted by, or under the supervision of a fishery biologist experienced in such efforts. Staff working with the seining

operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.

- ii. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
- iii. Seined fish must be released as near as possible to capture sites.
- iv. If a dead, injured, or sick listed species specimen is found, initial notification must be made to the National Marine Fisheries Service Law Enforcement Office, Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661, or by phone at 360.418.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care. Dead specimens should be handled so as to preserve biological material in the best possible state for later analysis of cause of death. With the care of sick or injured listed species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed.
- v. The transfer of any ESA-listed fish from the FHWA to third parties other than NMFS personnel requires written approval from the NMFS.
- vi. The FHWA must obtain any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities.
- vii. The FHWA must allow the NMFS or its designated representative to accompany field personnel during the seining activity, and allow such representative to inspect the FHWA's seining records and facilities.
- viii. A description of any seine and release effort will be included in a post project report, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and following placement and removal of barriers; the means of fish removal; the number of fish removed by species; the condition of all fish released, and any incidence of observed injury or mortality.
- ix. Water pumped from the work isolation area will be discharged into an upland area providing over-ground flow before returning to the creek. Discharge will occur so that it does not cause erosion.
- x. Discharges into potential fish spawning areas or areas with submerged vegetation are prohibited.

4. To implement Reasonable and Prudent Measure #4 (monitoring and reporting), the FHWA shall ensure that:

- a. Within 90 days of completing the project, ODOT will submit a monitoring report to NMFS describing their success meeting their permit conditions. This report will consist of the following information:

- i. Project identification.
 - (1) Project name;
 - (2) Starting and ending dates of work completed for this project; and
 - (3) The FHWA contact person.
 - (4) Monitoring reports shall be submitted to:

National Marine Fisheries Service
Oregon State Branch, Habitat Conservation Division
Attn: OSB2002-0048-FEC
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778
- ii. Isolation of in-water work area. A report of any seine and release activity including:
 - (1) The name and address of the supervisory fish biologist.
 - (2) Methods used to isolate the work area and minimize disturbances to ESA-listed species.
 - (3) Stream conditions before and following placement and removal of barriers
 - (4) The means of fish removal.
 - (5) The number of fish removed by species.
 - (6) The location and condition of all fish released.
 - (7) Any incidence of observed injury or mortality.
- iii. Pollution and erosion control.

Copies of pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
- iv. Culvert replacement.

Documentation of the following conditions:

 - (1) Finished grade slopes and elevations.
 - (2) Substrate composition within the culvert compared to substrates immediately up and downstream.
 - (3) Planting composition and density at the culvert inlet and outlet.
 - (4) Document the culverts ability to pass adult and juvenile fish at summer and winter flows.
- v. A narrative assessment of the project's effects on natural stream function.
- vi. Photographic documentation of environmental conditions at the project site and compensatory mitigation site(s) (if any) before, during and after project completion.
 - (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.

- (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
- (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

3. MAGNUSON - STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: 'Waters' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; 'substrate' includes sediment, hard bottom, structures underlying the waters, and associated biological communities; 'necessary' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH,
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH,
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the

agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and up slope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed in Section 1.2, Proposed Action. The action area is defined as the area adjacent to and over the South Umpqua River from approximately river-kilometer 16 to 80. This area has been designated as EFH for various life stages of coho and chinook salmon.

3.5 Effects of Proposed Action

As described in detail in Section 1.5, Analysis of Effects, the proposed activities may result in detrimental short- and long-term adverse effects to a variety of habitat parameters. These impacts include: Increases in turbidity, disturbance of the beds and banks of the river, removal of riparian vegetation and the potential for pollutants to enter the water.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect EFH for coho and chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FHWA and all of the reasonable and prudent measures and the terms and conditions contained in Sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NMFS if either the action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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